Kaiser-Hill

PROJECT BASELINE DESCRIPTION

371/374 Closure Project

Rocky Flats Closure Project

June 30, 2000

Approved:

Project Manager	**date**

Contents

PROJECT BASELINE

This Project Baseline Description (PBD) addresses the 371/374 Closure Project. The relationship of the 371/374 Closure Project to the other Rocky Flats closure projects and support organizations is shown in Figure 1.

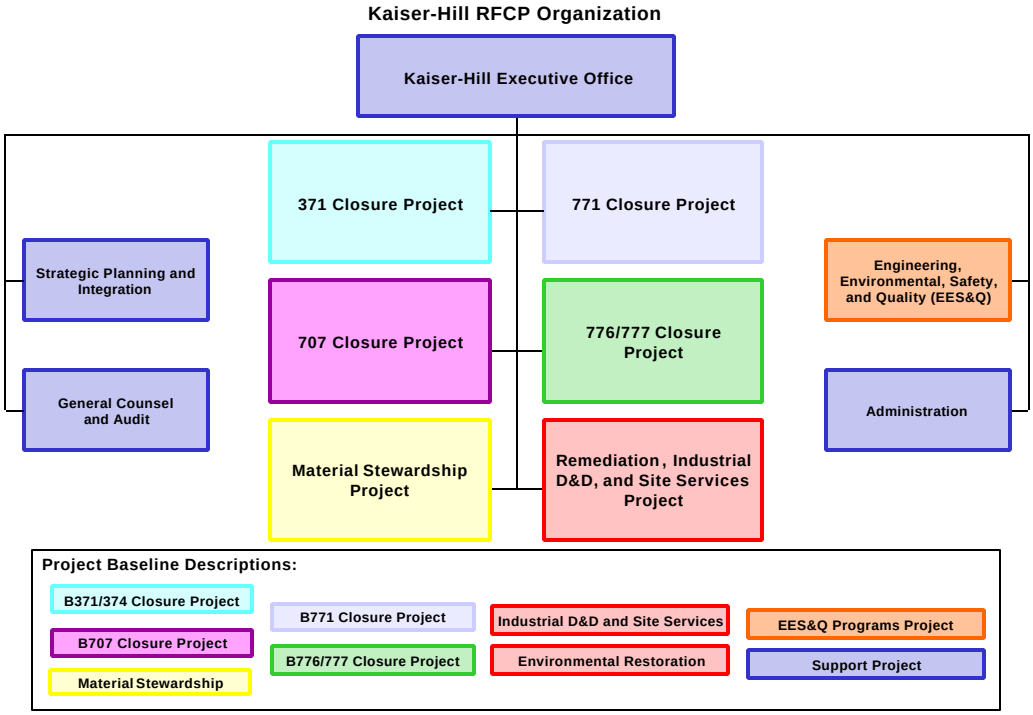

Figure 1: Kaiser-Hill RFCP Organization

The following section will define the scope of work for the 371/374 Closure Project. The scope information will provide a basis for detailed planning.

1. Scope

Here is the work breakdown structure for this project to the cost account level that supports this SOW:

A 371 Project

AA 371 Closure

AAA Project Management

AAB Facility Management

AAC Deactivation

AAD Decommissioning

AAE B374 Waste Operations

AAF PuSPS

AAG Wet Residues

AAH Salt Residues

AAJ SS&C Residues

AAK Dry Residues

1.1 AAA Project Management

This element includes project management, quality and compliance oversight, project engineering management, project administration, project controls and reporting, project finance and accounting, project document control, and human resource support.

1.2 AAB Facility Management

This WBS element is the B371/374 and 371A Cluster Facility Landlord Functions. Major sub-activities include Compliance Surveillance, Maintenance, Operations Technical Support, Operations Management, Facility Authorization Basis Development and Maintenance, and Cooling Tower Replacement. Facility Landlord Activities consist of the ongoing effort necessary to maintain a safe, compliant, and operable building in support of Defense Nuclear Facilities Safety Board (DNFSB) and Rocky Flats Cleanup Agreement (RFCA) milestones and other risk reduction efforts. Landlord activities ensure facilities are maintained in a safe state and operable condition until such time as the facilities are deactivated. This scope includes services necessary to maintain the facilities for projects operating in B371. Such services

include environmental, safety, health, quality, analytical laboratory support, utilities, and laundry. This WBS element does not include any Mission work.

Some level of landlord activities will be performed throughout each of the major WBS elements. Through FY01, as project levels increase in B371, such as B707 Salts and Dry Residues moving into B371, PuSPS operations, and Deactivation/Special Nuclear Material (SNM) removal, landlord support will be increased to adequately support B371 programs. As the Project transitions through the mission activities, the funding level for this WBS element will ramp-down commensurate with the reduction in requirements. The end state of this WBS element will be achieved when each of the major WBS elements have been completed and Closure is finalized.

1.3 AAC Deactivation

This WBS element is the 371/374 and 371A Cluster Deactivation/SNM Removal. Major sub-activities include Deactivation, SNM Removal, Caustic Waste Treatment, Calcining Sludge, and Post PuSPS SNM Holdup Stabilization and Packaging. SNM removal activities remove SNM holdup in numerous forms to support Material Access Area (MAA) and Protected Area (PA) closure. Deactivation activities remove rooms from operation, and prepare them for turnover for decommissioning or conversion/release to a new use meeting applicable safeguards, hazardous category or other completion criteria.

The scope of this WBS element does not include development of or installation of new processing/stabilization units other than post-PuSPS SNM holdup stabilization and packaging. Additionally, the scope does not include disposition of sealed radioactive sources.

According to the RFCA, Type 3 buildings must undergo deactivation.

> **Deactivation**
> Deactivation removes a building from operation and places the building in a safe and stable condition that eliminates or mitigates hazards and ensures adequate protection to the workers, the public and the environment. Deactivation reduces or eliminates the need for surveillance and maintenance activities.
>
> Deactivation includes Characterization, Planning & Project Management, Administrative Deactivation, Authorization Basis Changes, and Physical Deactivation tasks. Deactivation activities remove the cluster of buildings from operation, and prepare them for turnover for decommissioning or conversion/release to a new use meeting applicable safeguards, hazard category or other completion criteria.
>
> Specific deactivation activities include preparing Integrated Work Control Program (IWCP) Packages, performing removal of hazardous and non-hazardous material, performing holdup removal, and reducing building fire loading. Activities may include

inventory and removal of unattached hazardous materials from the building and project areas, such as regulated hazardous chemicals, beryllium, of gas cylinders, draining fluids from equipment, asbestos abatement and/or encapsulation, and repack of existing waste packages. During the deactivation process, RCRA units may be placed into RCRA stable condition or RCRA unit closure may occur. Disposition of excess property, in accordance with government property disposition requirements, is performed.

Deactivation includes removal of contaminated systems, system components, or equipment for the purpose of accountability of SNM and nuclear safety. It also includes removal of contamination incidental to other deactivation or for the purposes of accountability of SNM and nuclear safety. Deactivation does not include decontamination necessary for the dismantlement phase of decommissioning.

Deactivation is achieved when the building is in a safe and stable condition while awaiting further disposition and/or decommissioning, and dismantlement.

Type I and II buildings in the cluster may be treated individually. In that case they would undergo building stabilization instead of deactivation.

Building Stabilization

Building stabilization removes a building from operation and place the building in a safe and stable condition that eliminates or mitigates hazards and ensures adequate protection to the workers, the public and the environment. Stabilization occurs in buildings that do not have a deactivation phase. Stabilization reduces or eliminates the need for surveillance and maintenance activities.

Stabilization includes Characterization, Planning & Project Management, Administrative Stabilization, Authorization Basis Changes, and Physical Stabilization tasks. Stabilization activities remove the cluster of buildings from operation, and prepares them for turnover for decommissioning or conversion/release to a new use meeting applicable safeguards, hazard category or other completion criteria.

Specific Stabilization activities include preparing IWCP Packages, performing removal of hazardous and non-hazardous materials, performing holdup removal, and reducing building fire loading. Activities may include inventory and removal of unattached hazardous materials from the buildings and project areas, such as regulated hazardous chemicals, beryllium or gas cylinders, draining fluids from equipment, asbestos abatement and/or encapsulation, and repack of existing waste packages. RCRA units may be placed into a RCRA stable condition or RCRA unit closure may occur. Disposition of excess property, in accordance with government property disposition requirements, is performed.

Building stabilization is achieved when the building is in a safe and stable condition while awaiting further disposition and/or decommissioning, dismantlement, and demolition.

1.4 AAD Decommissioning

Decommissioning safely removes a building from the site, in a safe manner that minimizes hazards and ensures adequate protection to workers, the public and the environment. Decommissioning includes Characterization, Site Preparation, Decontamination, Dismantlement, Demolition, Project Management and Support Services tasks. Regulatory approval for decommissioning precedes the physical execution of decommissioning tasks. The decommissioning process, as implemented at RFETS, results in each building and its contents being dispositioned in accordance with the applicable regulations and requirements, whether as waste, recycled material, or reused property.

Specific physical decommissioning activities include characterization; stripout, removal and size reduction of process equipment (gloveboxes, tanks, process piping, ducting, etc.) and distribution systems (building lighting/power, heating, water, sewer, etc.); and isolation of the building from the rest of the site infrastructure. Packaging of contaminated wastes generated during the decommissioning effort, performing holdup removal; dispositioning property and waste; decontamination; building disassembly and dismantlement; and demolition. Activities such as performing waste chemical removal, dispositioning excess property, chemical hazard reduction and placement of RCRA units into RCRA stable condition, or their closure, may occur either during deactivation or decommissioning.

Site Preparation

Site preparation includes the establishment of laydown, shipping and material processing areas; set-up of size reduction, monitoring and waste staging areas, and step-off pads, and the removal of stored wastes. Decontamination areas include building interior and exterior surfaces or other fixed structures, equipment, drains, gloveboxes, tanks, process piping, and ducting. Removal of hazardous and toxic substances may be performed as a decontamination activity.

Demolition

Demolition of the walls, roof, non-structural and structural components, foundations and connecting structures (tunnels, breezeways, overhead walkways) of the building is performed. Unless specified differently in the building RFCA decision document, subsurface concrete will be removed to a depth of three feet below the existing grade. Demolition rubble will be properly dispositioned.

Characterization

Characterization activities supply the data necessary to minimize hazards and ensure adequate protection to the workers, the public and the environment. Characterization involves four time-phased elements. The elements are scoping, reconnaissance, in-process surveys, and pre-demolition surveys (including independent verification, if required). Decommissioning characterization does not include the characterization associated with Individual Hazardous Substance Site (IHSS) remediation or any process characterization of SNM.

In order to perform these physical activities significant planning and engineering resources prepare the following major documents (as needed): the Reconnaissance Level Characterization Report (RLCR); Pre Demolition Survey Report (PDSR), Decision Document (Decommissioning Operations Plan (DOP); Proposed Action Memorandum (PAM); Interim Measures/Interim Remedial Actions Document (IM/IRA), or use a RFCA Standard Operating Protocol); RCRA Unit Closure Plan; Health and Safety Plan (HASP); Integrated Work Control Program (IWCP) packages; Quality Assurance Plan (QAP); Waste Management Plan; Training Plan; utility relocation design documents; building demolition design documents, and equipment removal design documents.

The development of these work packages and plans requires the use of multiple support services such as: training; procurement and contract administration; security and fire protection; QA/QC; waste management and inspection; transportation and construction departments; radiological operations and engineering; Radiation Control Technician (RCT); medical and health; safety and industrial hygiene; shipping/ receiving and warehousing; legal; regulatory interface; laundry; small tools and personnel protective equipment (PPE); analytical laboratory; toxic and hazardous material handling; utilities; excess property; telecommunications and information resources; finance and administration; and planning and integration.

Completion of decommissioning results in the assignment of the building footprint being assigned to the Environmental Remediation project for any required remediation. Unless specified differently in the building RFCA decision document, “all buildings will be demolished…;” “All wastes are removed…;” and “building foundations, utilities or other remaining structures, will be removed to a depth of three feet below the existing grade." For each project, a Project Completion Report will be completed, approved, and placed in the Administrative Record in accordance with RFCA and other applicable requirements.

The work scope for this WBS element is divided into sets. The dismantlement scope of each set includes activities to remove process equipment and associated items. Items needed for safety and convenience of the workers performing the scope will be left in place. For example, fire suppression and alarm systems, ambient lighting, domestic

water, sanitary drains, Health Physics vacuum, and various tools and storage cabinets may be among the items left in place after dismantlement.

1.5 AAE B374 Waste Operations

B374 Operations provide the primary processing for Site process wastewater. Precipitation, sludge treatment/packaging, spray dryer, and evaporator operations will continue through the 2Q of FY03. Specific scope elements include:

(1) Evaporator operations, which is expected to process approximately 4M gallons of chemically and/or radioactively contaminated wastewater. Two outputs result from this process. The outputs are product water which is recycled for use as make-up water for the boiler plant and the 371/374 cooling tower, and brine which goes to the spray dryer process.

(2) Spray dryer operations involves the drying of concentrated evaporator brine to a salt.Approximately 650,000 gallons of brine will be dried in FY01 resulting in about 2,000,000 ft^3 of salt that will require shipment for offsite treatment and disposal (shipment and disposal of the salt is the responsibility of the Material Stewardship project). The most likely disposal site for the salt is the Envirocare facility in Utah. Approximately 100 pounds of salt will be sent to the Envirocare facility for acceptance testing during early FY01. If it is found to be compliant with Envirocare's waste acceptance criteria, a contract will be awarded to Envirocare for disposal of salts. Salt/brine preparation and packaging for offsite treatment and disposal will be performed by B374 and shipment will be coordinated by the Material Stewardship project.

(3) Precipitation processing involves the decontamination of wastewater to a level that can be processed through the evaporator. Approximately 200,000 gallons of feed wastewater are expected per year. The resulting sludge will be stored in tanks until final treatment can be performed and a disposal site is identified.

Sufficient storage capacity exists to continue storage of precipitation sludge generated until final treatment is available in FY02. Efforts are underway to identify disposal contractors to receive, process, and store the sludge. Identification of the final repository for the sludge is also part of the scope for the disposal contractor. Due to funding reductions and unanticipated scope changes for items such as fire watches and operational readiness review (ORR) preparation this activity is in jeopardy of being cancelled for FY00. This delay could impact the scheduled closure date for B374 by approximately 5 months.

(4) Waste collection and transfer includes process waste transfer system operation and maintenance. The scope of this activity includes operation and maintenance of 20 valve vaults located throughout the site. B374 is responsible for operating and maintaining everything from the valve vaults into the B374 tanks. Upon completion of the final transfer and rinse the valve vaults and associated piping and tanks will be turned over to the ER project.

(5) Process maintenance (corrective and preventive) and support includes work planning, administration of IWCPs, engineering and craft support, and procurement of maintenance parts. Estimates for B374 maintenance do not identify any major maintenance activities for B374 treatment systems.

(6) Compliance with all applicable regulations and DOE Orders (includes surveillance, tank scans, and other activities to ensure compliance).

(7) Support to Conduct of Operations includes general housekeeping, training and qualifications, procedure generation and maintenance, and administration of Shift Orders, Plan-of-the-Day (POD) meetings, Plant Action Tracking System (PATS) items, Environmental Compliance Action Tracking System (ECATS) items, and budgets.

(8) Integrity testing for the 231 and B374 tanks, as required by the Tank Management Plan Consent Order.

(9) Building 910 landlord activities until PA reconfiguration is complete, at which time responsibility is transferred to the ER project.

(10) Neutralization processing for approximately 4,500 gallons of radiologically contaminated acids. This treatment includes a DOE mandated ORR for start up approval that was not included in the original baseline scope. ORR costs will result in a change to a CDPHE processing commitment. The ER project is leading the effort to secure an off-site contractor to receive, process, and dispose of the acids in lieu of processing them in B374.

(11) Since B374 is scheduled for D&D in FY03 and other production buildings will not be demolished by then, there is a need to provide a water treatment (evaporation/ precipitation) system to replace the B374 system. B374 will administer a contract to identify and secure a subcontractor that will provide and install a mobile treatment unit, develop the appropriate authorization basis documentation, and support system startup (estimated completion in FY02).

1.6 AAF PuSPS

PuSPS activities include the following elements of work:

(1) Acceptance activities pertaining to the Stabilization and Packaging System (PuSPS). This activity includes reviews of BNFL, Inc. documentation, witnessing BNFL performance demonstrations, performing K-H post-acceptance testing, contracting with BNFL for technical support, preparation and maintenance of the Broomfield warehouse until completion of disassembly, and dispositioning of the Stabilization System equipment.

(2) Procurement and installation of a radiographic machine in B371 for the inspection of the containers produced by the Packaging System, consistent with the baseline inspection and periodic surveillance required by DOE-STD-3013. The lid of the inner can is designed to deflect at internal pressures of ~100 psi. This radiographic equipment is required to detect the deflection.

(3) Design and construction to install the BNFL Packaging System and K-H Stabilization System in B371. Activities include design, room modifications, spare parts/consumables, packaging system modifications, contamination modifications, functionality modifications, qualification of the outer can welding process, equipment procurement, construction, testing, National Environmental Protection Act (NEPA) determination, authorization basis, criticality safety limits, procedures development, training, and readiness assessment. At the completion of this element, the system will be capable of producing containers consistent with the requirements of DOE-STD-3013, and the start of operations will be approved. The scope of this element will also include the implementation of the Supercritical Fluid Extraction (SFE) system.

(4) Operations of the Packaging System and Stabilization System. including the procurement of the DOE-STD-3013 containers. All plutonium metal and oxide subject to DOE-STD-3013, plus specific additional items will be processed. This element will be completed when the packaging of plutonium metal and oxide identified in the Material Campaign Plan has been completed. Approximately 1,900 DOE-STD-3013 containers will be produced; 1,200 oxide and 700 metal. No classified shapes will be packaged in DOE-STD-3013 containers. The processing of the SNM Holdup is planned to occur in this element unless an alternative method of packaging has been determined. The scope of this element will also include SFE system operations.

(5) This element includes supporting the needs of the IAEA, including seal verification, inventory records review, assay of selected materials, sampling for destructive assay, and other activities. It is assumed that the processing of the IAEA material will not interfere with the productivity and performance of the PuSPS System. IAEA oxides can be processed concurrently with non-IAEA metals. Once IAEA material is shipped offsite, RFETS will no longer be responsible for supporting the IAEA safeguards requirements.

1.7 AAG Wet Residues

This WBS element includes operations and support staff, materials and supplies, maintenance of the process, staging of the material, storage of the materials and certification of materials intended for shipment to Waste Isolation Pilot Plant (WIPP). Transportation and disposal scope is included for Plutonium Fluorides only. The following Item Description Codes (IDC's) are covered by this project:

H61 Duct Holdup
089 Grease oxide
090 Plutonium Fluoride
091 Non-spec fluoride
092 Impure fluoride heel
093 Sodium fluoride pellets
097 Impure fluoride (in small cans)
099 Grease fluoride
290 Filter sludge
291 Dried lab waste fluoride sludge
292 Incinerator sludge
299 Miscellaneous sludge from repack
340 Sludge from size reduction area
338 Filter media
338G Filter media-organic contaminated
490 HEPA filters-not acid contaminated
342 Absolute drybox filters-acid contaminated
335 Absolute drybox filters-not acid contaminated
335G Absolute drybox filters-organic contaminated
376 Processed filter media
330 Dry combustibles
330G Dry combustibles-organic contaminated
337 Plastic
337G Plastic-organic contaminated
441 Unleached raschig rings
331 Ful-flo filters
331G Ful-flo filters-organic contaminated
336 Wet combustibles
336G Wet combustibles-organic contaminated
332 Oily Sludge

Processing includes repackaging and/or gas generation testing of the wet combustible drums. Repackaging will take place in B371, Rooms 3206 and 3701. Gas generation testing is performed in B371, Room 2202. Plutonium fluorides will be repackaged in B371, Room 3515. Room 3206 repackaging and Room 433 gas generation testing started in FY 98. Room 3701 repackaging and Rooms 3701 and 3709 gas generation testing started in FY 99. Room 3515 may also be utilized for some repackaging of non-fluoride wet combustible residues.

The total inventory is approximately 23,417 kg of material. There are 300 kg of resins that were disposed of by the Liquids project which was completed in February of FY99. There are approximately 317 kg of Plutonium Fluorides, targeted to start processing in FY00. There are

approximately 660 kg of leaded gloves that have already been dispositioned. The inventory is stored on the site with the majority of the items stored in B371 and B776.

The final end state is defined as the Wet Combustibles in WIPP-certified drums awaiting shipment.

Plutonium fluorides and wet combustibles will be processed utilizing two shifts per day. Non-destructive assay (NDA) will be accomplished by cal/gamma for the Fluorides and either segmented gamma scanner (SGS) can counter, SGS drum counter or tomographic gamma scanner (TGS) for the Combustibles. Costs for the Fluorides include repackaging and NDA and costs for the Combustibles includes NDA, Gas Generation testing, real-time radiography (RTR) (if required) and shipment to a storage facility.

Combustible residues are comprised of several residue types known or suspected to contain free liquids. Processing operations will take place in B371 which has the capability to treat, store, and dispose of liquid wastes. The residues that are currently considered to be in this category are discussed below. As a result of a previous revision to the baseline dry combustibles will be processed with the wet combustibles. Other categories of residue will be processed per the latest baseline revision, and are discussed below.

Nitric-contaminated and organic-contaminated residues will be repackaged and/or gas generation tested for disposal at WIPP. The remainder, primarily dry combustibles, will also be repackaged and/or gas generation tested for disposal at WIPP. Fluorides will be blended to meet safeguards termination limits (STL) as necessary and repackaged for shipment to WIPP.

Nitric-contaminated combustible residues were considered to be possibly unstable because of the potential presence of nitrates (nitric acid or nitrate salts) and combustibles (cellulosic or polymeric materials). Organic-contaminated wet/combustible residues were considered to be high risk due to the presence of elemental plutonium and chlorinated solvents, typically carbon tetrachloride. Radiolysis of carbon tetrachloride also generates hydrochloric acid which is extremely corrosive to drums and drum filters.

The DNFSB expressed concern that such combinations of oxidizers and fuels could, over time, result in materials having low enough ignition temperatures that they would represent a potential fire hazard. Although the concern remains, there have been no instances of ignition to date.

The residue characterization program has completed sampling and analyzing Wet Combustible residues. The characterization has provided a 95/5 confidence level that the combustible inventory is all "low risk" and may simply be repackaged and/or gas generation tested for disposal at WIPP.

Greases and oily sludges represent a very small portion of the wet/combustible residue backlog, and are very poorly characterized materials. Oily sludge was evaluated for stabilization through microwave-heating, but proved to contain too many volatile constituents for successful thermal treatment. Stabilization operations will consist of either cementation or merely mixing the material with a suitable absorbent and then repackaging the material for interim storage (if necessary) and ultimate shipment to WIPP.

The primary hazard associated with the various fluoride residues is the neutron radiation generated as a result of the interaction of alpha particles emitted by plutonium with fluorine atoms. These materials will be blended down as necessary to meet STL and repackaged for shipment to WIPP.

In summary, nitric and organic contaminated wet combustibles will be repacked and/or gas generation tested for disposal at WIPP. Raschig rings will be drained, air-dried, and packaged. Fluorides will be blended as necessary and repackaged for shipment to WIPP. HEPA filter media will be separated from the frame and packaged. Sludges will be packaged with absorbent. Absorbent may be added in any of the packaging steps.

Process throughput estimates are based upon the following:
1. Repackaging: Process availability will be ≥ 80%, with a building availability of 90%.
2. Gas Generation Testing: Process availability will be ≥ 80% with a building availability of 90%.

Estimated lifecycle production rates are further modified by a 1% reject rate for repack drums and a 10% reject rate for gas generated drums. These values represent reasonably predictable utilization of the B371 facility, process equipment, and staff as well as unknowns.

Actual throughput for the first half of FY99 are as follows:
1. Repackaging:
   The average repackaging rate has been 3 drums/week for day shift activities. Original estimates were based upon repackaging on drum every 9 hours of work. Actual repackaging rates have been +14 hours per drum through the first 425 Kgs repacked. Building availability and building efficiency rates have been greater than the original assumptions. Repackaging efficiency has been less than originally estimated and will be tracked by Project Management via a spreadsheet that tracks daily progress against schedule.

2. Gas Generation Testing (GGT):
   GGT efficiencies have been demonstrated through the first 5 months of operations. There are now 35 testers available. A major assumption delta is the reject rate from the GGT. The assumption of a 10% reject rate has been shown to be low, with the actual reject rate running at 60%.

The project is now assuming a 10% (up from the previous 1%) reject rate for repacked drums. This assumption will be tracked once actual GGT of repacked drums starts.

1.8 AAH Salt Residues

This WBS element includes operations and support staff, materials and supplies, maintenance of the process, storage of the stabilized materials, and certification of materials intended for shipment to the WIPP.

The Salt Stabilization Project mission is to stabilize approximately 16,000 kg of potentially unstable plutonium contaminated salt residues. The objective of the project is to blend the salt to meet the safeguards termination limits and Waste Analysis Plan criteria.

The material will be introduced into the gloveboxes in Room 3602 where it will be repackaged into WIPP-compliant containers. Once repackaged, the containers will be assayed and placed into Pipe Overpack Components for shipment to WIPP.

1.9 AAJ SS&C Residues

This WBS element includes operations and support staff, materials and supplies, maintenance of the process, storage of the stabilized materials, certification of materials intended for shipment to the WIPP.

Sand, slag, and crucible (SS&C) repack operations will take place in B371. The Item Description Codes that are included in the SS&C Scope include:

- 387- Reburned SS&C Sweepings
- 390- Unpulverized Slag
- 391- Unpulverized Sand and Crucible
- 392- Unpulverized SS&C, 393- SS&C Heel
- 394- Sand from BBO
- 395- Unpulverized Sand and Crucible,
- 396- Pulverized Slag
- 398- Pulverized SS&C.

Approximately 2800kgs of these IDC's have been repackaged for disposal at the Savannah River Site (SRS). The proposed plans for disposition of these IDCs will be to assay the containers in their current configuration and place the containers in Pipe Overpack Components for shipment to WIPP.

IDC 393 will be repackaged and assayed for shipment to the WIPP. As a result of the Environmental Impact Statement/Record of Decision (EIS/ROD) issued November 25, 1998 and DOE Technical Directive Letter MSD:CRS:01996, dated December 2, 1998, Kaiser-Hill was directed to repackage IDC 393 for disposal to WIPP.

The material will be introduced into the gloveboxes in Room 3602 where it will be repackaged into WIPP-compliant containers.

1.10 AAK Dry Residues

The Dry Repack Project mission is to repackage approximately 8,400 kg of dry inorganic residues in B371, Room 3602 for shipment to WIPP. The objective of the project is to size reduce residues (as necessary) for packaging; blend the residues (as necessary) to meet the safeguards termination limits; and perform visual examinations, packaging, NDA, and drum/POC packaging to meet WIPP/Waste Analysis Plan criteria.

During the transition from an operating SNM facility to a Closed Site, the Project encompasses the following key activities:

- Facility Landlord Function: to provide safe, compliant facilities to allow mission and Site Closure activities to occur.
- PuSPS
- Salt/SS&C/Dry Residues processing
- Wet Residues processing
- Fluoride Residues processing
- Waste Operations
- Closure of MAA and RFETS PA with the focus on: 1) cleaning up building systems, structures, components and spaces to “Inventory Clean Conditions”, by removing and quantifying reportable quantities of SNM that could contribute to credible rollup and 2) the disposition of classified government property.
- Deactivation/SMN Removal: to remove SNM from untoward places for proper dispositioning and to place the facilities within the Cluster in a safe, stable condition to minimize landlord costs and surveillance and maintenance costs, for the purpose of retiring the facilities with adequate regard for the health and safety of the worker and to protect the public and environment.
- Decommissioning occurs after deactivation including surveillance and maintenance, decontamination, and dismantlement of the facilities within the Cluster.

- Closure includes sampling, analyzing and review of data necessary to ensure regulatory requirements have been met for Closure.
- Material Stewardship
- PA Closure

1.11 Boundaries

The B371 Closure Project includes the following buildings as listed in the following Table 1.

Table 1. B371/374 Cluster Buildings

Bldg/ID	Hazard Category	Description
371	3	Process Building
374	3	Waste Treatment
373	1	Cooling Tower
374A	1	Fire Risers
377	1	Dry Chemical Silo
378	1	Dry Chemical Silo
381	2	Fluorine Building
T371H	1	Office Building
T371J	1	Office Building
T371K	1	Office Building
376	1	Office Building
T376A	1	Office Building
T371A	1	Office Building

Other Facilities

Buildings: 215D(being evaluated), 226 NaCl Brine Tank, 227 Nitric Acid Tank, 228A Drying Bed, 228B Drying Bed, 231 Process Waste Pump House, 231A Waste Storage Tank, 231B Waste Storage Tank, 262 No. 2 Diesel Fuel Storage Tank, 262A No. 2 Diesel Fuel Storage Tank, 308B Modular Storage Tank Pump House, 308D Central Sump Pump House, 308B-A Modular Storage Tank, 308B-B Modular Storage Tank, 308B-C Modular Storage Tank, 428 Waste Collection Pump House Low Level, T428B Trailer, 728 Process Waste Pit, 730 Process Waste Pit, 910 Solar Pond Evaporator Building, VV 001-020, TK-14 Storage Tank, TK-15 Storage Tank, TK-16 Storage Tank, Tanks 128-131 Storage Tanks, Tanks 163-170 Storage Tanks, Tank 208 Liquid Argon Storage Tank, Tanks 209-221 Helium Storage Tanks, Tanks 223-228, Tank 284 Helium Storage Tank, Tank 290 Storage Tank, Tanks 324-325 Diesel Storage Tanks.

B374 Waste Operations is responsible for the valve vaults, B231, Tanks 231A & B, B910, holding ponds 228A & B, B226, B227, and Tanks 308B-A,B&C. These vaults, tanks, and buildings represent the control points from which B374 accepts various waste streams. B374 will manage these facilities until the supply of waste for the specific lines has ended. Upon termination of use of the lines and associated tanks and valves, these facilities will be turned over to the Environmental Remediation project for RCRA closure and deactivation.

This Cluster is associated with two Operable Units (OUs). The remediation of these OUs is the responsibility of the ER project. The first OU contains three IHSSs, which are detailed below. The second OU contains one IHSS, which is also detailed below. An OU is defined as a grouping of IHSS(s) into a single Management Unit. An IHSS is defined as specific locations where solid wastes, hazardous substances, pollutants, contaminants, hazardous wastes, or hazardous constituents may have been disposed or released to the environment within the Site at any time, irrespective of whether the location was intended for the management of these materials. For details regarding these OUs and IHSSs, reference the Historical Release Report (HRR)

2. Budget

The 371/374 Closure Project Baseline Budget is shown in Table 2 on the following page.

Table 2. 371/374 Closure Project Baseline Budget

Burdened Cost ($000)

Project/Cost Account			*F00 Feb-Sep*	*F01*	*F02*	*F03*	*F04*	*F05*	*F06*	*F07*	*Total*
A	**371 Complex Project**										
	AA	**371 Closure**									
	AAA	**Project Management**	1,509	5,602	4,611	1,709	346	474	0	0	**14,252**
	AAB	**Facilities Management**	14,634	19,196	16,057	12,600	6,268	8,283	0	0	**77,039**
	AAC	**Deactivation**	3,251	6,125	6,584	7,985	344	0	0	0	**24,289**
	AAD	**Decommissioning**	584	10,832	18,016	26,564	56,309	27,235	28,216	1,052	**168,809**
	AAE	**B374 Waste Operations**	3,066	5,091	4,478	3,886	0	0	0	0	**16,521**
	AAF	**PuSPS**	10,854	5,914	2,402	0	0	0	0	0	**19,170**
	AAG	**Wet Residues**	4,788	12,188	5,964	0	0	0	0	0	**22,940**
	AAH	**Salt Residues**	3,575	1,256	0	0	0	0	0	0	**4,831**
	AAJ	**SS&C Residues**	421	2,499	0	0	0	0	0	0	**2,920**
	AAK	**Dry Residues**	0	2,488	4,666	0	0	0	0	0	**7,154**
		Project A Totals:	**42,682**	**71,190**	**62,778**	**52,745**	**63,268**	**35,993**	**28,216**	**1,052**	**357,924**

Thursday, June 22, 2000 *rev. 2*

Source: Cost Account Flash Price Spread Report, Kaiser-Hill P&I Reporting System (rpt_fps_ca, Project: BaslDevl_0622a)
FY00 Actuals from P&I Reporting System, FY00 May Database 6/28/00

3. Schedule

A summary of the 371/374 Closure Project Baseline Schedule is shown in Figure 2 on the following page.

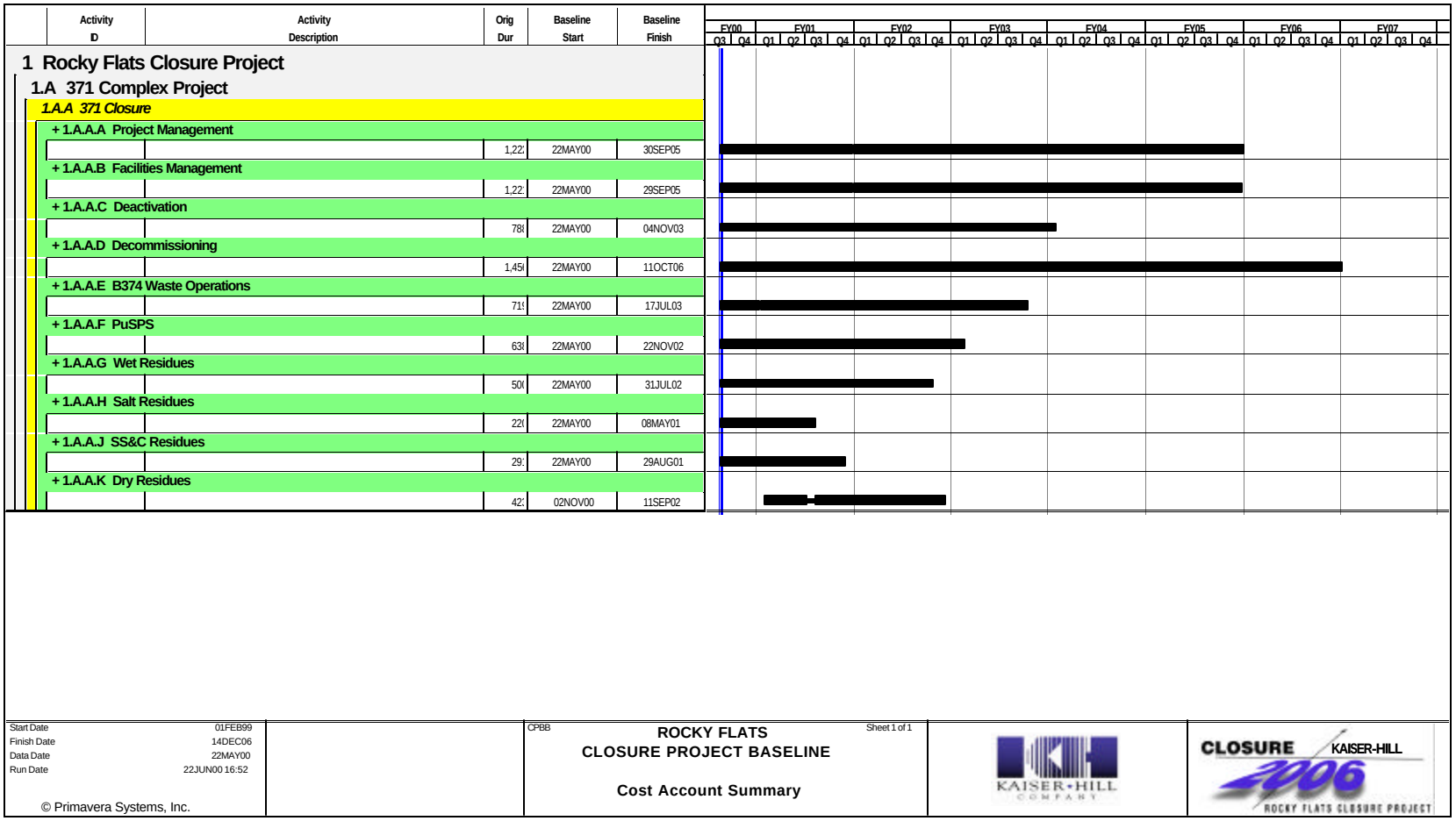

Figure 2: 371/374 Closure Project Baseline Schedule

4. Assumptions

As the 371/374 Closure Project progresses, different assumptions will be necessary. New assumptions will be added with each update of this PBD. These include 2006 CPB Assumptions and additional Building Specific Assumptions. Key assumptions in planning and implementing the 371/374 Closure Project are:

Project/Facilities Management Assumptions

1. When SNM is removed, the majority of the infrastructure will continue, due to the SNM holdup being present. (AAB)
2. The majority of the engineered safety systems (e.g. criticality, fire systems, HVAC, SAAMs, etc.) will be required. (AAB)
3. The Facility will be maintained at an operability of a minimum level of 90% for required nuclear operations. (AAB)
4. No major Authorization Basis or criticality safety issues will impact facility availability. (AAB)
5. There will be no seismic event during the life cycle of the RFCP that results in the implementation of site seismic response process. (AAB)
6. Transportation methods and compliant shipping containers will be available to support SNM and residue activities. (AAG/AAH/AAJ/AAK)
7. Material At Risk (MAR) and /or seismic criteria do not reduce Building 371 Facility availability processing capacity for the SPS. (AAA)
8. Criticality Safety Operating Limits (CSOLs) evaluations will allow for full operations and material handling as planned. (AAB)
9. The Regulatory framework established in the Final Rocky Flats Cleanup Agreement, dated July 19, 1996 will be followed. (AAA)
10. The Site will maintain compliance with all Laws, Regulations, and legally binding agreements, including, but not limited to, FFCA, RFCA, Residue Consent Agreement, TSCA, RCRA, NPDES, CERCLA, PAAA, NHPA, and OSHA. (AAA)
11. Maintenance will be performed to a level necessary to maintain the safety envelope and achieve performance measures. (AAB)
12. No significant, unplanned DNFSB recommendations will be acted upon without appropriate revision to the Project Plan. (AAA)
13. The appropriate technologies are investigated, funded, and put into use at the earliest opportunities in order to maximize efficiency and to reduce costs. (AAA)

14. Endorsement will be received from stakeholders through routine meetings and the approval of the DOP. (AAD)
15. There will be no major accidents or incidents that could affect the cost and schedule. (AAA)
16. The appropriate skill mix will be available. (AAA)
17. The Site Management will not significantly change, and if a change does occur the transition will not affect the Closure Operations. (AAA)
18. All strategy assumptions listed in the Site Project Management Plan apply to Building 371/374 Cluster Closure Project Baseline. (AAA)
19. 19.The facility is maintained at an operability of a minimum level of 90% for required nuclear operations. (AAB)

Deactivation/Decommissioning Assumptions

1. No major discovery issues which affect authorization basis (a USQ) or criticality safety impact the ability to perform SNM Removal/Deactivation, Decommissioning and Mission Work simultaneously. (AAC/AAD)

2. Regulatory authorities approve onsite waste storage plans to support SNM Removal and Decommissioning operations. (AAD)

3. It is assumed that the removed SNM holdup material meets the acceptable criteria for existing processing/stabilization units such as OASIS, TSIS, fluoride calciners, or PuSPS, or can be dispositioned as waste without processing . (AAC)

4. The regulatory agencies will adhere to document review schedules as described in RFCA and the DPP. (AAD)

5. The regulatory agencies will approve the concept of an overall IA Characterization Plan that enables site specific planning information to be added as addenda. (AAD)

6. It is assumed that initial scans are adequate to allow for MAA Closure Plan development, despite background activity. (AAC)

7. Based on historical use of fogging and strippable coating (albeit somewhat limited), it is assumed that a single application will achieve reduced derived air concentration (DAC) readings that support the use of powered air purifying respirators (PAPRs) or less in room applications and that a single application will provide an adequate barrier to prevent

contamination transfers during deactivation. It is also assumed, based on historical implementation, that building ventilation configuration can be controlled to allow successful application of the fogging material. (AAD)

8. Seventy percent of the building characterization to support DOP development is assumed to be complete. Only the remaining 30% characterization is planned. This assumption will be verified during the Historical Site Assessment. (AAD)

9. A wall-to-wall scan will not be required following completion of dismantlement and prior to demolition. (AAD)

10. SNM removed by CY02 will be to sufficient levels to allow MAA/PA Closure. (AAC)
11. All significant holdup (kg quantities) from all nuclear facilities is sent through PuSPS or Wet Residues prior to their planned completion dates (both 12/31/01). Only gram quantities will be processed following completion of the nuclear mission, and the same resources that calcine CWTS sludge will do the work. These small quantities will be shipped as waste (blended if necessary); no 3013s will be produced after PuSPS is shutdown. No additional scheduled activities or costs will be required. (AAC)
12. The Protected Area will meet an accelerated Closure Date of 1/01 with a B371 PA until 3/02. (AAC)

PuSPS Assumptions

1. The DOE supplied Government Furnished Equipment (GFE), BNFL Packaging System will perform as designed without significant modifications. (AAF)

2. The Packaging System will be capable of continuous operations, without excessive maintenance, such that its availability will be not less than 72%. (AAF)

3. The Packaging System will be capable of functioning at a minimum rate of not less than 1 container every 2 hours, either metal or oxide. (AAF)

4. A DOE approved deviation path will be available for packaging and shipping materials in 3013s which cannot meet the 3013 standard (low Pu content, moisture cannot be measured accurately, etc.). Any alternate approved path will not impact the material campaign or require additional equipment for processing. (AAF)

5. Repackaging of materials which cannot meet the 3013 standard will be minimal (0% for metals, less than 5% for oxides). (AAF)

6. Data and a technical basis will support the elimination of surveillance requirements per HSP 31.11 for material that is packaged in DOE-STD-3013 containers. (AAF)

7. On-site surveillance of DOE-STD-3013 will be limited to the initial weighing and pressure indication radiography of the 3013 container. Radiography is limited to the top of the 3013 container by equipment currently on-site. No oral or visual document/history is required for materials to be packaged in 3013 containers.

8. DOE will modify DOE-STD-3013-99 to raise the limit of contamination on the outside of the inner 3013 to at least 2000 dpm per square cm.

9. No additional requirements for DOE-STD-3013s will be mandated above and beyond what is required to meet the Standard itself, including receiver site requirements and material disposition requirements.

10. Building 371 shall be the interim repository for all SNM; Room 3331 shall remain the storage location for IAEA –safeguarded material. (AAF)
11. No additional materials will be placed under the IAEA safeguards. (AAF)
12. The material currently under IAEA can be successfully packaged per the requirements of DOE-STD-3013 while under IAEA safeguards without negatively affecting Stabilization and Packaging System throughput. This assumption includes resource constraints that the IAEA may experience and any Destructive Assay Requirements that may be imposed. In addition, it is further assumed that this packaging process will be performed in Building 371 during FY01. (AAF)
13. The only Destructive Assay samples that will be taken will be those taken during the DOE-STD-3013 repackaging to determine moisture content. (AAF)
14. The IAEA will be able to utilize Site calorimetry/gamma spectrometry equipment for their Non-Destructive Assay (NDA) of material packaged per the requirements of DOE-STD-3013. (AAF)
15. Additional international inspection activities, such as the Tri-Lateral Initiative, are not currently identified. If such events occur, a Baseline Change Proposal (BCP) will have to be approved to provide additional funding. (AAF)
16. IAEA material can be transferred to SRS no later than 6/1/02. (AAF)
17. The Stabilization and Packaging System will stabilize the holdup identified and recovered by January 2002, as necessary. Holdup recovered after that date must be stabilized elsewhere, or dispositioned as is. (AAF)

Wet/Fluoride/Salt/SS&C/Dry Residues Assumptions

1. For IDC 393, it is planned to use the same packaging configuration as Salt Operations. Administrative Preps will be conducted in FY99 and FY00. Operations will begin following the completion of the B371 Salt Repack Scope. (AAH)

2. All of the material to be processed is according to the Ulrich database as of 3/1/98. There is a risk that the total amount of material to be processed maybe -10 to +40%. (AAG/AAH/AAJ/AAK)

3. Technical justifications for rebaselining the Wet Project will be approved. (AAG)

4. Issues that could adversely affect repack production include such issues as Perpetual Inventory, bag integrity, and filter issues will be resolved in a timely manner. (AAG)

5. Funding and manpower requirements for the Wet Project will be available as needed. (AAG)

6. Wet Combustible production rates will be met, including Building and equipment efficiencies. (AAG)

7. The Wet Combustibles processing gloveboxes will be taken out of operations 1/31/02, the last drums will wait 5 months, be Head Space Gas-Sampled, and may return a "rogue" drums. (AAG)

8. Plutonium Fluoride will go to WIPP. (AAG)

9. Material movement (I.e. drums) within B371 will not impact the repackaging process. (AAG/AAH/AAJ/AAK)

10. -Materials that are greater than 10% plutonium by weight will be blended down to less than 10% plutonium by weight. (AAG/AAH/AAJ/AAK)

11. Solid residues that are listed as hazardous waste may, after treatment, be stored without meeting Land Disposal Restrictions (LDR's) per Compliance Order on Consent No. 93-04-23-01. (AAG/AAH/AAJ/AAK)

12. The treated residues will be TRU waste. (AAG/AAH/AAJ/AAK)

13. Delays to residue stabilization forced by site funding constraints will not require enhanced surveillance to make the delays acceptable to the DNFSB. Enhanced surveillance will require additional funds. (AAG/AAH/AAJ/AAK)

14. The Residue Environmental Impact Statement (EIS) will be approved in time to meet production and shipping metrics. For SS&C the approval time frame is by March, 1998. (AAJ)

15. Non-Destructive Assay (NDA) equipment installed for the baseline processes (SGS) will be sufficient to meet through-put as well as WIPP and safeguards requirements. (AAG/AAH/AAJ/AAK)

16. Unexpected conditions such as contaminated drums, contents different than marked, damaged containers, etc will not be encountered in more than 10 percent of the feed material for SS&C and 1% of the feed material for Wet Combustibles repack and 10% for Wet Combustibles gas generation testing. (AAJ)

17. Process efficiency including transportation, equipment reliability(except gas generation testers), operating personnel availability, building availability will be no less than 75 percent. Gas generation testers efficiency will be no less than 80%. (AAG)

18. On Site Transportation and Waste Management capabilities will support residue processing requirements. (AAG/AAH?AAJ/AAK)

19. ISSC requirements are not part of the baseline plan for Wet Combustibles. (AAG)

20. Moisture Sampling will not be required by the Safety Analysis Report for Packaging (SARP) for SS&C. Existing analytical data will be sufficient to allow off site shipments. (AAJ)

21. -Safeguards and Security requirement of NDA assaying using the calorimeter will be lower than 10%. If 10% is mandatory, shipping targets will be missed. (AAA)

Waste Operations Assumptions

1. The Caustic Waste Treatment System, Building 371, will shut down 12/31/02. (AAE)
2. Once Acid Neutralization activities are complete on (estimated complete 9/30/00-12/31/00) in Building 374, no additional acids will be accepted. (AAE)
3. Waste disposal sites will be available to accept Building 374 sludge and salt. (AAE)

4. Steam and natural gas will be available for Building 374 operations through March 2003. (AAE)
5. 374 will fund selection, design, procurement, construction, licensing and startup of the Alternate Water Treatment System (AWTS). Environmental Remediation (ER) will operate the AWTS. (AAE)
6. Maintenance and RCT personnel will be assigned to support B374. (AAE)
7. Total sludge volume to be processed does not exceed 95,000 gallons. (AAE)
8. The existing Waste Acceptance Criteria (WAC) will not change for the life-cycle of the project. (AAE)
9. Identification of Sludge Repository and WAC will occur in time for the final design and construction of the Sludge Treatment Process to support the FY03 Closure date of B374. (AAE)
10. Total design, construction, licensing, and start-up cost for the Sludge Treatment Process will not exceed $3.8M. (AAE)
11. ORRs in B374 are not required for startup of spray dryer, evaporator, sludge treatment or precipitator processes. (AAE)
12. Weather patterns produce average precipitation for the site. (AAE)
13. There will be no major equipment or component failures associated with any B374 processes for the remainder for the life-cycle. (AAE)
14. Cost benefit analysis identification of total replacement processes for B374 will be completed in FY00. (AAE)
15. Technology is readily available to remove sludge hold-up from current storage locations. (AAE)
16. Out of scope work like mandated fire watches and ORRs is funded in time to avoid process shutdowns or personnel furloughs. (AAE)

5. Project Organization

Figure 3 shows the 371/374 Closure Project organization.

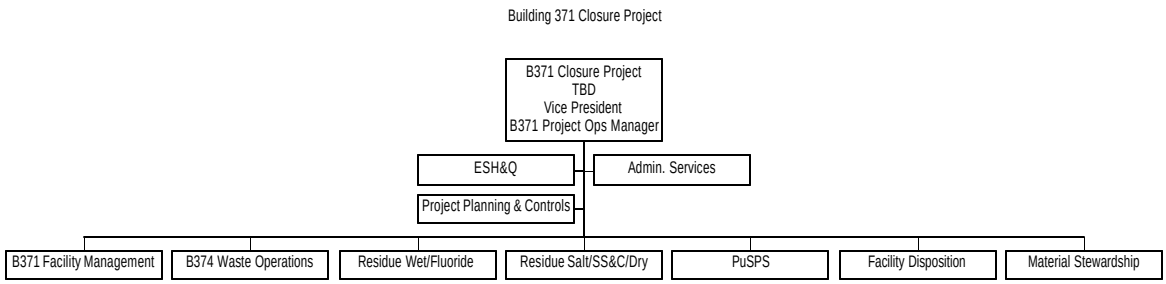

Figure 3: 371/374 Closure Project Organization